

United States
Environmental Protection
Agency

Making the Business Case for Sustainability and Greener Products

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The Big Picture

- Who are the players?
- What are the business drivers?
- Examples of businesses winning the market with green chemistry



Programs Covered

- Green Chemistry
- Safer Choice
- Environmentally Preferable Purchasing
- Standards development



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What is Sustainable Business?



Players in Sustainable Products

- Natural Resource Manager (forester, farmer, miner)
- **Manufacturers/Formulators**
- **Purchaser-User**
- **Standard developer/Ecolabel Program**
- Wall Street stock evaluator

Government Programs



Green Chemistry

- ❖ Chemical product design and development
 - * Design of new or redesign of existing chemical products with low hazard & environmental impact
- ❖ Chemical product manufacture & processing
 - * Minimize hazardous chemicals and other materials use, minimize waste generation, minimize energy and water use, maximize yield
- ❖ Chemical (and material) supply chains



The “12 Principles” of Green Chemistry

- Prevent waste
- Maximize atom economy
- Design less hazardous syntheses
- Design less hazardous chemical products
- Use less hazardous solvents/reaction conditions
- Design for energy efficiency
- Use renewable feedstocks
- Avoid chemical derivatives
- Use catalysts
- Design for degradation
- Analyze in real time
- Minimize the potential for accidents



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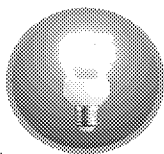
Green Chemistry Sources of Value Propositions

Improving Economic and Environmental Performance



❖ cost savings (materials & energy)

- ❖ energy savings
- ❖ water savings
- ❖ waste management savings (hazardous waste handling)



❖ new products (sources of revenue)

- ❖ sustainable/sustainability products
- ❖ services -> info management



❖ managing/transforming waste

- ❖ liability -> asset
- ❖ Industrial by-product synergy



❖ corporate Goodwill



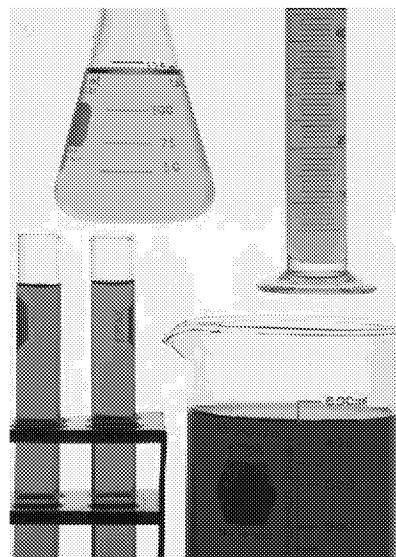
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Presidential Green Chemistry Challenge

- Annual awards to recognize the most innovative green chemistry technologies & to document quantified benefits
 - 2017 Awards marks the 22nd year
 - * 114 Winners from 1,500+ nominations
 - 2017:
 - * Emphasis beyond awards ceremony to ***expanding upon innovations of nominees***
 - * ***Amplifying innovation*** by leveraging technology/manufacturing initiatives at the federal/state/local level, and through private sector interest(s).
 - * EPA is working actively to help partner green chemistry innovators with ***supply chain opportunities***, leveraging existing assistance programs.



Amplifying and Leveraging Green Chemistry

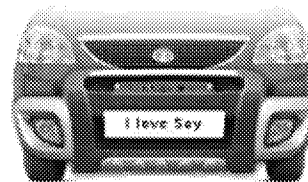



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Auto Supply Sector

- Wide Range of Materials

- Plastics and Foams -Production of Basic Chemicals from Renewable Feedstocks at Lower Cost
 - ✓ polyurethane foams, including auto seating and headrests (molded foams) [Cargill]
 - ✓ for polyester fabrics, including auto fabrics [DuPont]
- Lubricants, coatings
 - ✓ Lubricants – Elevance, HC, Verdezyne
- Fuels
 - ✓ Additives – Soltex, CB&I and Albermarle





Safer Chemicals and Safer Chemical Products



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The Safer Choice Program

- Focus is safer chemistry
 - For all ingredients in the supply chain
- Encourages green chemistry
 - consumers & purchasers
 - product manufacturers
 - chemical manufacturers
 - retailers



Why do companies like the Safer Choice label?

Verification by a trusted government agency that products contain only safer chemical ingredients and that they:

- Are safer for families, pets, communities, and the environment
- Are safer for workers and work places
- Perform



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Safer Choice-Certified Products

www.epa.gov/saferchoice/products

More than 2,000 labeled
products from 500 partners

~ 700 Retail

> 1,300 Industrial & Institutional



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Safer Choice Helps Companies Compete

- Chemical Manufacturers
- Product Formulators
- National and Local Retailers
- Wholesalers and Distributors
- Facility/Property Managers





Thank you!!

- www.epa.gov/GreenChemistry
- www.epa.gov/SaferChoice



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